AMENDMENT OF THE SPECIFICATION

Please amend the specification as follows:

On page 4, replace the first paragraph (lines 1 and 2) with the following paragraph:

In an exemplified embodiment, the co-culturing is in a medium containing N2 SUPPLEMENT®.

On page 7, replace the first paragraph (lines 1-6) with the following paragraph:

"Neuronal differentiation factors" are chemical or biological factors that induce differentiation of stem cells into cells of the neuronal lineage. Neuronal differentiation factors of the invention include, but are not limited to, basic fibroblast growth factor, fibroblast growth factor-8, brain-derived neurotrophic factor, Sonic Hedgehog, N2 SUPPLEMENT®, and combinations thereof that are capable of modulating neuronal differentiation of stem cells in culture.

On page 7, replace the fourth paragraph (lines 17-27) with the following paragraph:

Culture methods of the invention comprise an ordered addition of neuronal differentiation factors, wherein there is a first addition of basic fibroblast growth factor (Abraham, J. A. , 1986); a second addition of fibroblast growth factor 8 (Gemel, J. , 1996; Yoshiura, K. , 1997) and Sonic Hedgehog (Marigo, V. , 1995); a third addition of brain-derived neurotrophic factor (Maisonpierre, P. C., 1991) followed by co-culture with fetal brain astrocytes. Co-culturing can be performed in a medium having a supplement comprising insulin, transferrin, selenite, putrescine and progesterone. In an exemplified embodiment, the co-culturing is in a medium containing N2 SUPPLEMENT®, available from Gibco (Catalog No. 17502048, containing recombinant human insulin, human transferrin (iron-saturated), sodium selenite, putrescine and progesterone in Phosphate Buffered Saline).

On page 11, replace the first paragraph (lines 1-9) with the following paragraph:

Stem cells can be maintained and allowed to expand in culture medium (i. e., an "initial culture") that is well established in the art and commercially available from the American Type Culture Collection (ATCC). Such media include, but are not limited to, DULBECCO'S MODIFIED EAGLE'S MEDIUM® (DMEM), DMEM F12 MEDIUM®, EAGLE'S MINIMUM ESSENTIAL MEDIUM®, F-12K MEDIUM®, ISOCOVE'S MODIFIED DULBECCO'S MEDIUM®, RPMI-1640 MEDIUM®. It is within the skill of one in the art to modify or modulate concentrations of media and media supplements as necessary for the stem cells used. It will also be apparent that many media are available as a low-glucose formulation, with or without sodium pyruvate.

On page 11, replace the last paragraph (starting at line 31; page 23, lines 1-11) with the following paragraph:

Additional supplements can also be used to supply the stem cells with the necessary trace elements for optimal growth and expansion. Such supplements include insulin, transferrin, sodium selePillm and combinations thereof. These components can be included in a salt solution such as, but not limited to HANK'S BALANCED SALT SOLUTION® (HBSS), EARLE'S SALT SOLUTION®, antioxidant supplements, MCDB-201® supplements, phosphate buffered saline (PBS), ascorbic acid and ascorbic acid-2-phosphate, as well as additional amino acids. Many cell culture media already contain amino acids, however some require supplementation prior to culturing cells. Such amino acids include, but are not limited to, L-alanine, L- arginine, L-aspartic acid, L-asparagine, L-cysteine, L-cystine, L-glutamic acid, L- glutamine, L-glycine, L-histidine, L-isoleucine, L-leucine, L-lysine, L-methionine, L-phenylalanine, L-proline, L-serine, L-threonine, L-tryptophan, L-tyrosine, and L-valine. It is well within the skill of one in the art to determine the proper concentrations of these supplements.

On page 12, replace the first full paragraph (lines 12-23) with the following:

Antibiotics are also typically used in cell culture to mitigate bacterial, mycoplasmal, and fungal contamination. Typically, antibiotics or anti-mycotic compounds used are mixtures of penicillin/streptomycin, but can also include, but are not limited to amphotericin (FUNGIZONE®), ampicillin, gentamicin, bleomycin, hygromycin, kanamycin, mitomycin, mycophenolic acid, nalidixic acid, neomycin, nystatin, paromomycin, polymyxin, puromycin, rifampicin, spectinomycin, tetracycline, tylosin, and zeocin. Antibiotic and antimycotic additives can be of some concern, depending on the type of work being performed. One possible situation that can arise is an antibiotic-containing media wherein bacteria are still present in the culture, but the action of the antibiotic performs a bacteriostatic rather than bacteriocidal mechanism. Also, antibiotics can interfere with the metabolism of some cell types.

Replace Table 1 on page 20 with the following:

Table 1: Primers used for Q-RT-PCR

Gene	Forward	Reverse	Size	
Sox-1	AAGATGCACAACTCGGAGATCAG	TGTAATCCGGGTTGTTCCTTCAT	51 bp.	(SEQ ID NO: 17)
Otx-2	CCATGACCTATACTCAGGCTTCAGG	GAAGCTCCATATCCCTGGGTGGAAAG	211 bp.	(SEQ ID NO: 18)
Otx-1	AGGCGCTGTTTGGCAAAGA	CCTCCTCGCGCATGAAGAT	50 bp.	(SEQ ID NO: 19)
Pax-2	CCAGGCATCAGAGCACATCA	CGTCTGTTGTGCCTGACACATT	141 bp.	(SEQ ID NO: 20)
Pax-5	AAACGCAAGAGGGATGAAGGT	AACAGGTCTCCCCGCATCT	100 bp.	(SEQ ID NO: 21)
Pax-3	TGTGTGGCACCTGGAGTTCA	CACCCTCAGGAACAGAGTGACTT	107 bp.	(SEQ ID NO: 22)
CRet	GAGGAAATGTACCGTCTGATGCT	TCTTGACCATCATCTTCTCCAGATC	102 bp.	(SEQ ID NO: 23)
Nurr-1	TGAAGAGAGCCGGAGAAGGAGATC	TCTGGAGTTAAGAAATCGGAGCTG	255 bp.	(SEQ ID NO: 24)
Nestin	GAGAAGACAGTGAGGCAGATGAGTTA	GCCTCTGTTCTCCAGCTTGCT	113 bp.	(SEQ ID NO: 25)
GFAP	GAGGAGTGGTATCGGTCTAAGTTTG	GCCGCTCTAGGGACTCGTT	165 bp.	(SEQ ID NO: 26)
MBP	GTGCAGCTTGTTCGACTCCG	ATGCTCTCTGGCTCCTTGGC	153 bp.	(SEQ ID NO: 27)
GABA	AGGTTGACCGTGAGAGCTGAAT	TGGGCAGGCATGGGC	68 bp.	(SEQ ID NO: 28)
DAT	GCAATCATCACCACCTCCATTA	ATGGGCACATTGTGCTTCTG	100 bp.	(SEQ ID NO: 29)
TH	AGTTCTCCCAGGACATTGGACTT	ACACAGCCCAAACTCCACAGT	100 bp.	(SEQ ID NO: 30)
TrH	GGATGGAGTCTGATGTCACCAA	TGACGTTTCTCAGGCATTAAGC	120 bp.	(SEQ ID NO: 31)
DBH	TTCCAATGTGCAGCTGAGTC	GGTGCACTTGCTTGTGCAGT	242 bp.	(SEQ ID NO: 32)